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Andrew S. Wright

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EXAMINER

TRAN, KHANH C

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,422

Applicant(s)

WRIGHT ET AL.

Examiner

Khanh Tran

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 12-25 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 12-21, 28 and 30-34 is/are allowed.
- 6) ☒ Claim(s) 22 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 23-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The Amendment filed on 10/04/2005 has been entered. Claims 1-8, 12-25, 27-34 are pending in this Office action.

Response to Arguments

2. Applicant's arguments, see page 14 of the Amendment, filed on 10/04/2005, with respect to the rejection(s) of claim(s) 27 and 29 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Okamoto et al. U.S. Patent 5,960,028.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

Art Unit: 2631

double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 22 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 16 of copending Application No. 09/910,477. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 16 of the copending Application No. '477' discloses a digital waveshaping circuit comprising all the means performing the steps of the application claim, therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to employ the digital waveshaping circuit as specified in the copending Application No. '477' to perform all the claimed steps.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2631

4. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doberstein et al. U.S. Patent 6,424,678 in view of Okamoto et al. U.S. Patent 5,960,028.

Regarding claim 28, referring to figure 1, in column 5, lines 25-55, a multi-channel QAM includes a serial-to-parallel converter 104 for converting a serial data stream into parallel sub streams being fed to a plurality of pulse shape filters 116, each sub-channel stream is frequency translated to a separate sub-carrier frequency by plurality of complex mixer 118, a summation block 122 for forming a composite signal.

Doberstein et al. does not teach a delay circuit in at least a first data path where the first data path is a path from an input symbol stream to the composite data stream. where the delay circuit delays data in the first data path by a fraction of a symbol period relative to data in a second data path as claimed in the application claim.

Okamoto et al. teaches in figure 1 a transmitter including a S/P converter 5, delay elements 27 29 31 33 and combiner 35; see column 11, lines 35-45, multiplexed communication becomes possible while preventing degradation of correlated outputs on the receiving side and avoiding difficulty in demodulation. Since the time difference between the delay times is set to be at least 1 chip, the signal to be demodulated never overlaps the next incoming signal, whereby error rate characteristics can be improved. In other words, signal degradation caused by interference of delayed and multiplexed signals are reduced, whereby error rate characteristics can be improved. Furthermore, because Okamoto et al. teachings suggest the delay is configurable (see column 4 lines 50-65), therefore, it would have been obvious for one of ordinary skill in the art at the

Art Unit: 2631

time of the invention that Doberstein et al. transmitter in figure 1 can be modified to include delay elements configured such that the fraction of the symbol period from a data stream other than the first data stream is delayed by about a fraction of time equal to a multiple of the symbol period divided by the total number of data stream as taught by Okamoto et al.. Motivation is that according to Okamoto et al. teachings, the time difference between the delay times is configurable so that the signal to be demodulated never overlaps the next incoming signal, whereby error rate characteristics can be improved.

Regarding claim 27, claim 27 is rejected on the same ground as for claim 28 because of similar scope.

Regarding claim 30, as recited in claim 28, according to Okamoto et al. teachings the time difference between the delay times is configurable.

Allowable Subject Matter

5. Claims 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 1-3 are allowed.

Art Unit: 2631

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, claim 1 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a predictive weight generator adapted to reduce an amount of waveshaping processing applied to a plurality of input symbol streams by a waveshaping circuit, the predictive weight generator comprises "pulse-shaping filter emulation circuits, mixers, summing, a comparator, and a delay circuit configured as set forth in the application claim".

7. Claims 4-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, claim 4 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a post-conditioning circuit that generates a de-cresting pulse that can decrease an amplitude of a signal peak of a composite multicarrier signal in real time, the post-conditioning circuit comprises "elements configured as set forth in the application claim".

8. Claims 12-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Art Unit: 2631

Regarding claim 12, claim 12 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a composite waveform de-cresting circuit that digitally generates at least one de-cresting phase shift in real time that allows a composite multicarrier signal to be generated with a decrease in an amplitude of signal peak, the composite waveform de-cresting circuit comprises "elements configured as set forth in the application claim".

9. Claims 17-21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 17, claim 17 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling at least a portion of coefficients used in waveform shaping applied to a plurality of baseband signals, the method comprising "the steps performing tasks as set forth in the application claim".

11. Claims 30-34 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 30, claim 30 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite

Art Unit: 2631

multicarrier signal in real time, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2631

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Pham Cong Tran

12/22/2005

Examiner KHANH TRAN